



NORTH COAST INTEGRATED REGIONAL WATER MANAGEMENT PLAN

**North Coast Integrated Regional Water Management Plan
Proposition 84 Round 1 Implementation Grant**

Priority Project Photo Pages

Ackerman Creek Habitat Restoration

Organization Name: Pinoleville Pomo Nation

Photo Pages



Photo description: Giant Reed stand



Bodega Bay HU Water Resources Management Project

Organization Name: Gold Ridge RCD

Photo Pages



Photo description: Upland Gully to be restored in the Estero Americano Watershed



Photo description: Erosion in the Estero Americano Watershed



Photo description: Stagnant hot water in Salmon Creek(Photo by Lauren Hammack, PCI



Photo description: Dry pool of Salmon Creek adjacent to near-channel wells

Lower Russian River Water Quality Improvement Project

Organization Name: Sotoyome Resource Conservation District

Photo Pages



The mainstem of the lower Russian River



Photo description: Surveyor stands on road at edge of gully created by a stream crossing the road surface. This gully will continue to enlarge and contribute sediment to Austin Creek. We plan to decommission the road at this site by pulling all road fill away from stream and laying back banks to 2:1.



Photo description: Old culvert is set flat in fill and is undersized for stream flow. Stream has overtopped culvert in past and eroded road surface. Creek is aggraded above culvert. We plan to decommission the road at this site by pulling all road fill away from stream and laying back banks to 2:1.



Photo description: This stream crossing has eroded through road fill. This gully will continue to expand and migrate back through the road fill. We plan to properly install a 24" x 60' culvert at this location to stop the erosion from occurring and allow the landowners to access a significant portion of their property once again.



Photo description: Collecting water samples and measuring ambient water quality parameters

Nissa-kah Creek Fish Passage Removal
Organization Name: Hopland Band of Pomo Indians

Photo Pages



Photo Description: Plunge pool (Unit #304) on upper NissaKah Creek with a drop of approximately six to seven feet. No fish were observed upstream of this pool.



Photo Description: Rising flows on NissaKah Creek through the Nokomis road box culvert on January 31, 2008. Photos taken by Michael Love.



Photo Description: Hwy 175 Crossing: Culvert Inlet



Photo Description: Hwy 175 Crossing: Culvert Outlet



Photo Description: Highway 175 culvert on NissaKah Creek – looking upstream from below TWC



Photo Description: Highway 175 culvert on NissaKah Creek – looking upstream from outlet – note change in hydraulics at point where crossing had been lengthened from original construction.

Russian River *Arundo donax* Removal and Riparian Enhancement Program

Organization Name: Sotoyome Resource Conservation District

Photo Pages



Photo Description: Where infestations are disparate and highly intermixed with native vegetation, as is the case for the tributaries of the Russian River and in some areas along the mainstem; hand removal crews operating chainsaws and brush cutters have proven to be the best means of removal. This is followed by herbicide application.



Photo Description: Hand crews are also needed for removal of *Arundo* along the banks of the mainstem of the Russian River and along the banks of tributaries.



Photo Description: Where infestations are dense, and contain little or no native vegetation, such as along the mainstem of the Russian River in Alexander Valley; mowing with heavy equipment, followed by herbicide application has proven to be the most effective.

Copeland Creek Watershed Detention/Recharge, Habitat Restoration, and Steelhead Refugia Project

Organization Name: Sonoma County Water Agency

Photo Pages



Photo Description: Copeland Creek Reach Requiring Sediment Removal, Blackberry and Other Invasive Species Removal, and Habitat Restoration



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Photo Description: Residential Flooding from Copeland Creek



Photo Description: Residential Flooding from Copeland Creek



Photo Description: Residential Flooding from Copeland Creek



Photo Description: Commercial Flooding from Copeland Creek



Photo Description: Commercial Flooding from Copeland Creek

Camp Creek Habitat Protection – Road Decommissioning Implementation Project

Organization Name: Karuk Tribe

Photo Pages



Photo Description: Resulting slide from stream diversion directly impacting bluff





Indian Creek Sewer Pipeline Crossing

Organization Name: Happy Camp Sanitary District

Photo Pages



Photo Description: Exposed sewer pipeline crossing in Indian Creek just upstream of the Highway 96 Bridge. The two 6-inch diameter brown ductile iron pipes (left to right in the photo) are subject to damage from water, rocks, loose trees, and undermining during high flows. (View is from the Highway 96 Bridge looking upstream.)



Photo Description: The high water mark on the downstream bridge abutment for the 1997 flood was just below the bottom of the bridge. The high water mark is about 20 +/- feet above the creek bed. (If you were in the creek and looking downstream, this bridge abutment would be on your left.)



Photo Description: Upstream side of Highway 96 Bridge to be used to support new sewer pipeline crossing. (Indian Creek flows from right to left in this view.)



Photo Description: The start of a recreational rafting trip on the gravel bar at the mouth of Indian Creek on the Klamath River. (View is from upstream on Indian Creek looking downstream towards the river. The Klamath River flows from left to right in this view.)

Happy Camp Water Treatment System Upgrade

Organization Name: Happy Camp Community Services District

Photo Pages



Photo Description: Treatment Plant Building in foreground with one of the Pressure Filters and various buildings in background (view looking downhill towards Elk Creek) – Piping and controls for the new roughing filter and modifications to the existing pressure filter piping and controls will be installed within and adjacent to the treatment plant building.



Photo Description: Existing Pressure Filters with Treatment Plant Building in background (view looking uphill) – Piping for the filters allow each filter to be run separately or both to be run in parallel. The area to the right of the filters is the possible site for the new roughing filter.

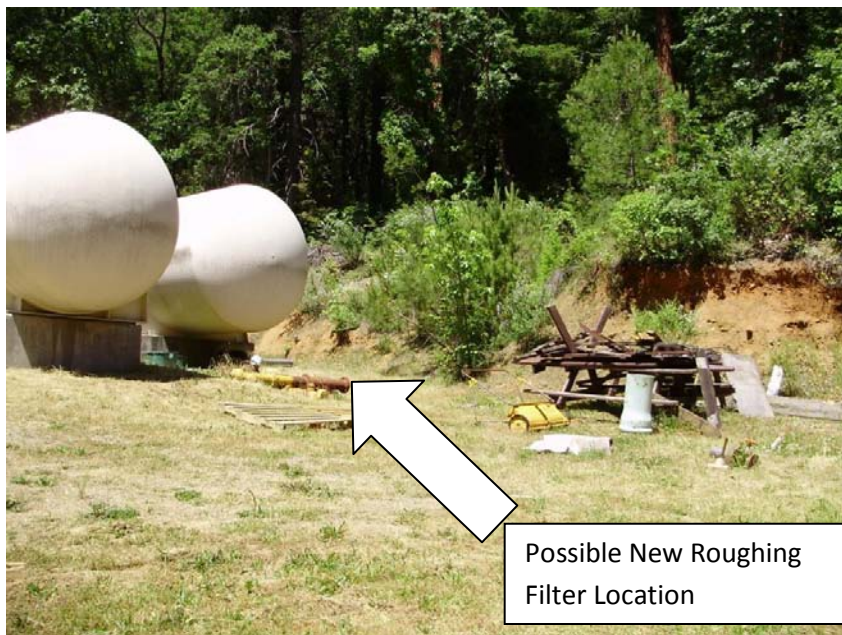


Photo Description: Possible New Roughing Filter Location (to the right of existing filters between the filters and the hillside) (view looking uphill)



Photo Description: Existing Wetwell Building (view looking downhill toward Elk Creek) (flow in Creek is left to right) – The building houses the wetwell pumps and electrical equipment and covers an underground wetwell (raw water concrete storage reservoir). Note the proximity of the creek to the wetwell building. Although the wetwell building appears to be just outside the published FEMA FIRM 100-year floodplain, flood waters reached the wetwell during high water in 1997 and 2006, which in part indicates the building is subject to floods more frequent than the 100-year flood.



Photo Description: Existing Off-White Wetwell Building in foreground. Blue and white electrical and utility sheds and one of the pressure filters at higher elevations in the background (view looking uphill from the bank of Elk Creek) - Existing electrical equipment for wetwell Pumps in the wetwell building will be relocated adjacent to one of the other structures at a higher elevation and a safe distance from the 100-year floodplain.

Del Norte Agricultural Enhancement Program
Organization Name: Del Norte Resource Conservation District

Photo Pages



Photo Description: Gutters and pipeline will divert rainwater away from heavy use areas and outlet it to pasture.



Photo Description: Roofing will be installed over manure storage and heavy use areas – diverting rainwater from storage increasing effective storage volume.



Photo Description: Hard hose big guns driven by a small engine are a common choice for smaller dairies managing their manure as a slurry. This “gun” is manufactured in Oregon.



Photo Description: Current hydraulically driven irrigation equipment are not designed to spread manure slurry.



Photo Description: Low head submersible pumps will be installed to masticate waste and transfer it to storage.



Photo Description: Irrigation pumps will be installed to move manure from storage to field sprinkler(s).



Photo Description: Pipeline will be installed to distribute manure to additional acreage. Current systems were designed for irrigation water only.



Photo Description: Back-up generators will be installed to run manure management systems during emergencies.



Photo Description: Lined and/or covered manure storage lagoons are alternatives to traditional earthen lagoons. These may be installed as part of the NCIRWMP.



Photo Description: Circular concrete tanks are alternatives to traditional earthen lagoons. These may be installed as part of the NCIRWMP.

Mattole Integrated Watershed Management Initiative

Organization Name: Mattole Restoration Council

Photo Pages



Photo Description: The debris slide depicted in this photo is actively delivering sediment into the Upper North Fork Mattole River. Following the installation of bioengineered riprap rock and large wood structures (not funded through this project), extensive planting of native riparian trees and shrubs will take place to provide added bank stabilization, increase riparian shade, and improve salmonid habitat.



Photo Description: The Mattole River headwaters on September 29, 2008. What looks like a mountain road is actually a dry streambed during the low-flow season. In extremely dry seasons such as this one, oversummering salmonids, including threatened Coho salmon, experience 100% mortality rates. The proposed project works to improve summer water flows in this region, while simultaneously utilizing a recovery rearing program for Coho salmon to avoid extirpation until water quantity issues are adequately addressed.

Mendocino Headwaters Integrated Water Quality Enhancement Project
Organization Name: Mendocino County Resource Conservation District

Fish Passage Upgrades

Photo Pages



Photo Description: Site# 5 Galbreath downstream 1 12-08-2010.JPG



Photo Description: Site# 5 Galbreath downstream 2 12-08-2010.JPG



Photo Description: Site# 5 Galbreath upstream 1 12-08-2010.JPG



Photo Description: Site# 5 Galbreath upstream 2 12-08-2010.JPG



Photo Description: Site# 5 Galbreath upstream 3 12-08-2010.JPG



Photo Description: Site# 9 Galbreath downstream 1 12-08-2010.JPG



Photo Description: Site# 9 Galbreath downstream 2 12-08-2010.JPG



Photo Description: Site# 9 Galbreath upstream 1 12-08-2010.JPG



Photo Description: Site# 111 Lawson outlet 1 12-08-2010.JPG



Photo Description: Site# 163 Lawson inlet 1 12-8-2010.JPG



Photo Description: Site# 163 Lawson outlet 1 12-8-2010.JPG



Photo Description: Site# 163 Lawson outlet 3 12-8-2010.JPG



Photo Description: Site# 173 Lawson inlet 1 12-08-2010.JPG



Photo Description: Site# 173 Lawson outlet 1 12-08-2010.JPG



Photo Description: Site# 173 Lawson outlet 2 12-08-2010.JPG



Photo Description: Site# 173 Lawson inlet 2 12-08-2010.JPG

Waterfall Gulch Transmission Main Project

Organization Name: City of Fort Bragg

Photo Pages



Photo Description: Existing Scholar's Marsh (Wetland) Crossing.



Photo Description: Existing Scholar's Marsh (Wetland) Crossing.



Photo Description: Existing Scholar's Marsh (Wetland) Crossing.



Photo Description: Example of overgrown areas with lack of access to existing main line.



Photo Description: Landscape features have been placed over existing pipeline alignment.



Photo Description: Existing Scholar's Marsh (Wetland) Crossing.

Blue Lake Fieldbrook Pipeline Support Retrofit

Organization Name: Humboldt Bay Municipal Water District

Photo Pages



Photo description: Existing trestle with missing deck and ties showing pipeline.



Photo description: Typical structural deterioration on portal bracing and inclined end posts.



Photo description: Typical structural deterioration on stringers and floor beams.



Photo description: Typical abutment/pier deterioration.



Photo description: Typical deck and tie deterioration including pipeline.



Photo description: Typical deck rot.



Photo description: Typical abutment connection deterioration.



Photo description: Pier deterioration that has exposed timber pile support.

Sustainable Forests, Clean Water and Carbon Sequestration Demonstration Project

Organization Name: Redwood Forest Foundation Incorporated

Photo Pages



Photo Description: One possible location for the acorn-harvesting orchard is pictured above. Notice some large oak trees surrounded by small diameter trees. The Biochar demonstration project would thin much of the understory, leaving the prime acorn producing trees and allowing Native American tribes to use this plot of forest for cultural and subsistence practices.



Photo Description: Two Biochar conversion units identical to the one that will be purchased for this demonstration project are pictured above.

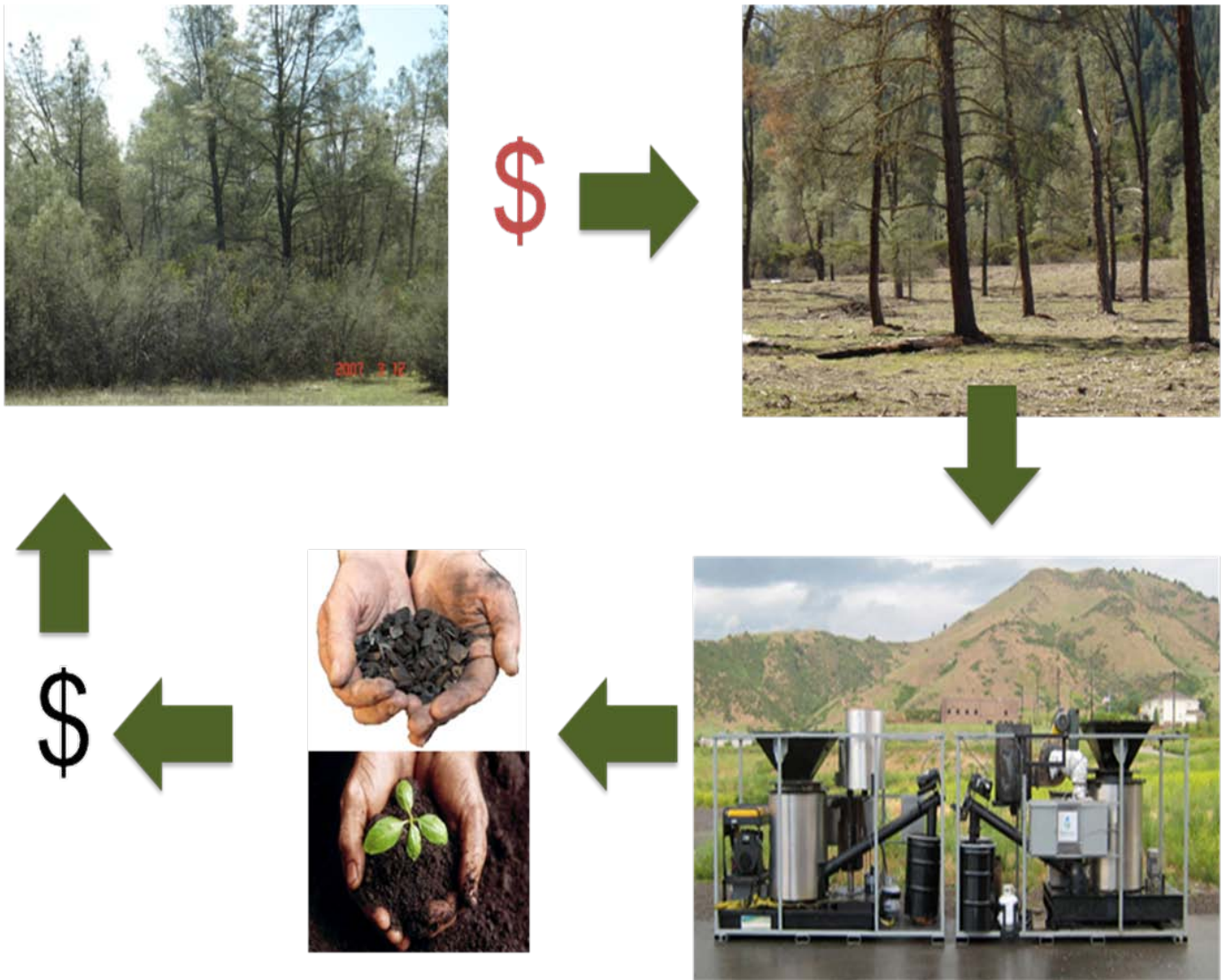


Photo Description: Above is a visual summary of the Biochar demonstration project. First, a stand of overcrowded forest will be cleared and impacts of understory clearing to forest health will be demonstrated. Second, biomass removed from the demonstration plot will be transported to a facility that converts biomass into Biochar. Once Biochar is produced it will be sold as a soil amendment. Net revenue will pay for the cost of thinning the demonstration forest plot.